

We claim:

1. A process for the preparation of clay-filled polyolefins which comprises:
  - (a) treating a non-acid-treated smectite clay with a Ziegler-Natta catalyst in the presence of a hydrocarbon; and
  - (b) polymerizing an olefin in the presence of the treated clay and an organoaluminum cocatalyst.
2. The process of claim 1 wherein the Ziegler-Natta catalyst incorporates a Group 4-6 transition metal.
3. The process of claim 2 wherein the transition metal is selected from the group consisting of titanium, vanadium, and chromium.
4. The process of claim 1 wherein the organoaluminum cocatalyst is a trialkyl aluminum compound.
5. The process of claim 1 wherein the smectite clay has no surface pretreatment.
6. The process of claim 1 wherein the smectite clay has been surface treated prior to treatment with the Ziegler-Natta catalyst.
7. The process of claim 6 wherein the smectite clay is surface treated with a silicon containing compound or with a monoalkyl metal compound.
8. The process of claim 7 wherein the smectite clay is surface treated with an alkyl disilazane.

9. The process of claim 1 wherein the smectite clay contains an organic cation.
10. The process of claim 9 wherein the smectite clay contains an ammonium cation where the nitrogen has four non-hydrogen substituents.
11. The process of claim 1 wherein the smectite clay contains a metal cation.
12. The process of claim 11 wherein the metal cation is sodium.
13. The process of claim 1 wherein the smectite clay is dried prior to treatment with the Ziegler-Natta catalyst.
14. The process of claim 1 wherein the smectite clay is stirred in a hydrocarbon solution for more than 1 hour prior to treatment with the Ziegler-Natta catalyst.
15. The process of claim 1 wherein the clay is used at a level of from about 0.1% to about 15% by weight based on the amount of polyolefin.
16. The process of claim 15 wherein the clay is used at a level of from about 1% to about 10% by weight based on the amount of polyolefin.
17. The process of claim 16 wherein the clay is used at a level of from about 4% to about 6% by weight based on the amount of polyolefin.
18. A clay-filled polyolefin composition prepared by the process of claim 1.
19. A clay-filled polyolefin composition of claim 18 wherein the clay is present in the polyolefin as exfoliated clay platelets.